

Application No. 09/868,025
Amendment dated September 9, 2005
Reply to Office Action of March 9, 2005

REMARKS

Claims 1-2, and 10-11 are currently pending and stand rejected. Claim 10 is amended herein to correct a typographical error. No new matter is presented.

Favorable reconsideration is respectfully requested in light of the comments below.

Withdrawn Rejections and Objections

The Applicants respectfully note the withdrawal of the objection to claims 1-2 and 6-8 and the Figures. The Applicants further note the withdrawal of the rejection of claims 10-11 under 35 U.S.C. § 112, 2nd paragraph.

In addition, the Examiner has indicated that pending claims 1-2 and 10-11 are deemed free of the prior art of record.

Rejections Under 35 U.S.C. § 112, first paragraph

Claims 1-2 and 10-11 stand rejected under 35 U.S.C. § 112, first paragraph, as purportedly failing to comply with the enablement requirement. In particular, the Examiner has stated:

It is unclear what role SEQ ID NO: 1 or 2 might have in stress tolerance, if any. Therefore, it is apparent that further research not considered to be routine would be required before one skilled in the art would know the function and thus how to use Applicants' SEQ ID NO: 1 encoding SEQ ID NO: 2 to enhance an agronomic trait in a transgenic plant. The specification provides no more than an invitation to experiment requiring undue trial and error experimentation.

The Examiner has invited the Applicants to provide evidence in the form of data to support the stress tolerance activity of SEQ ID NO: 1 in a transgenic plant to overcome this rejection. In this regard, the Applicants respectfully direct the Examiner's attention to the confirmatory data and discussion below.

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Plants respond to salt stress in numerous ways. One tissue primarily affected by salt stress is the root system. *See generally* Jia et al., *J. Exp Botany* 53:2201-2206 (2002). The Applicants studied the effect of salt (NaCl) concentration on various seedling growth parameters such as root length, shoot length, number of primary roots, number of lateral roots, number of leaves and length of the second leaf. Most parameters especially shoot length showed a dramatic reduction as the concentration of NaCl was increased from 0 mM to 200 mM.

At 200 mM salt, rice has been described as salt susceptible. The Applicants have examined the number of lateral roots at this stage. It is clear that transgenic plants expressing AGT-SAL (SEQ ID NO:1 encoding SEQ ID NO:2) have a greater number of lateral roots (15 and 21 roots versus 11 of the wild type). For this experiment, wild type and transgenic line seeds were germinated on MS media supplemented with 200 mM NaCl. Seedlings were grown in sterile containers illuminated by 16 hours of light and 8 hours of dark. Plant measurements were performed on the 20th day.

| Rice Line | Number of lateral roots | p-value |
|-------------------------|-------------------------|---------|
| Basmati 370 (wild Type) | 10.54 | NA |
| 3C2 (transgenic) | 21.10 | 0.061 |
| 1B (transgenic) | 15.40 | 0.027 |

- Number of lateral roots (average of at least 10 plants);
- P-value is a result of performing the t-test between Basmati 370 and the respective transgenic line.

Lateral root development is initiated by auxin, but is inhibited by abscisic acid. *See* De Smet et al., *Plant Journal* 33: 543-555 (2003). Salt stress induces the accumulation of abscisic acid primarily in roots, thus inhibiting lateral root initiation. *See generally* Jia et al., cited *supra*. While not intending to be bound by theory, it is hypothesized that through over-expression of AGT-SAL, the Applicants have relieved the stress induced by salt, thereby allowing auxin to initiate lateral root development.

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The Applicants assert that given the present guidance provided in the specification and the limitations set out in the claims, one of skill in the art would understand how to make and utilize the subject matter of the present claims without undue experimentation.¹ Based on the foregoing, the Applicants submit that claims 1-2 and 10-11 are enabled as presented. Accordingly, withdrawal of this rejection is respectfully requested.

¹ "The enablement requirement is often more indulgent than the written description requirement. The specification need not explicitly teach those in the art to make and use the invention; the requirement is satisfied if, given what they already know, the specification teaches those in the art enough that they can make and use the invention without 'undue experimentation.'" *Amgen v. Hoechst Marion Roussel*, 65 USPQ2d 1385, 1400 (Fed. Cir. 2003) (internal citations omitted). See also MPEP §2164.01 (indicating that a patent need not teach, and preferably omits, what is well known in the art).

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CONCLUSION


Applicants respectfully submit that claims 1-2 and 10-11 are in condition for allowance. If, for any reason, the Examiner determines that the pending claims are not in condition for allowance, applicants request that the Examiner call the undersigned attorney at 202-736-8143 in an effort to resolve any matter still outstanding *before* the issuance of another action.

In the unlikely event that the Patent Office determines that extensions and/or other relief is required, applicant petitions for any required relief including extensions of time and authorize the Assistant Commissioner to charge the cost of such petitions and/or fees due to our Deposit Account No. 18-1260, referencing Docket No. 22513-00501. Any refund should be credited to the same account.

Respectfully submitted,

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Date: September 9, 2005